

Customer No.: 31561  
Application No.: 10/708,353  
Docket NO.: 10785-US-PA

In The Specification:

Please amend the following paragraphs:

[0008] To solve the problem mentioned above, the present invention provides a microstrip line parallel-coupled-resonator filter with open-and-short end can achieve fast attenuation of the stop band to eliminate the image signal . At the same time, keep the compact size of filter.

[0009] In order to achieve the object mentioned above and others, the present invention provides a microstrip line parallel-coupled-resonator filter with open-and-short end. The filter comprises an input port, a first resonator, a second resonator, a third resonator, and an output port. The input port receives an input signal, the first resonator is a bent resonator coupled signal from the input port. The second resonator is a bent resonator whose both ends are shorted to ground and coupled signal form the first resonator. The third resonator is a bent resonator coupled signal from the second resonator. The output port couples signal form the third resonator and outputs signal. The cross coupling between first resonator and third resonator generate transmission zero, it cause steeper shirt properties than conventional filter in the lower stop-band. The cross coupling between first resonator and third resonator can be designed by the gap, so the dip of the rejection can be adjusted to the image frequency to eliminate the interference signal.

[0011] In one embodiment, the input port, first resonator, the second resonator, the third resonator, and the output port of the microstrip line parallel-coupled-resonator filter with open-and-short end are manufactured on a substrate. Wherein, the dielectric constant of the substrate is 3.38, and the thickness of the substrate is 20 mils. The grounding of both ends of the second resonator is achieved by using the method of coating

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metal on the through hole or by using the method of inserting the grounded pole.

[0014] FIG. 1 schematically shows a diagram of a conventional three-resonator conventional microstrip line parallel-coupled-resonator filter that is suitable for the microwave band.

[0015] FIG. 2 schematically shows a frequency response curves of the conventional microstrip line parallel-coupled-resonator filter of FIG. 1.

[0016] FIG. 3 schematically shows a diagram of a microstrip line parallel-coupled-resonator filter with open-and-short end of the preferred embodiment according to the present invention; and FIG. 4 schematically shows a frequency response curves of a microstrip line parallel-coupled-resonator filter with open-and-short end of FIG. 3.

[0022] Referring to FIG. 4, it schematically shows the frequency response curves measured from the manufactured filter as shown in the diagram. The central frequency is 5.8 GHz, The pass-band is about 5.5 ~ 6.2 GHz. The insertion loss is about 1.5 ~ 2 dB. The return loss is greater than 10 dB and the image rejection capability in lower stop-band (point C) is around -70 dB. Further, at point D, the rejection of upper stop-band is around -50dB. The rejection of filter is much better than the conventional microstrip line parallel-coupled-resonator as show in FIG 2.